ensure a rough approximation of each woman's immediate neighborhood. Census tracts are small, relatively permanent statistical subdivisions of counties, designed to be relatively homogenous with respect to sociodemographic characteristics and living conditions, and contain on average 4,000 residents.[17] Previous research confirms the validity of the census tract unit of aggregation in birth outcome research.[18]

Tract-level data from the 2000 Census were merged with each live birth record. Census variables are aggregated individual characteristics used to approximate the neighborhood sociodemographic environment. Examples of the census-tract measures that were merged with the birth records are: percent of households below the 1999 federal poverty level, percent of households on public assistance, percent of households that are female-headed with dependent children, percent of households with owner/renter expenses greater than 50 percent of household income, percent of males and females who are unemployed, percent of persons with less than a high school degree, percent of households with income less than $30,000, percent of families who own their home, percent of families in same house since 1995, and median value of owner-occupied house.

This paper illustrates results for the effects of neighborhood-level education, residential stability, poverty, and deprivation. These neighborhood measures were selected because of their potential as modifiable neighborhood conditions that may influence health through policy-relevant pathways. These neighborhood-level influences are estimated separately in a random effects multivariate logistic regression model, controlling for three individual-level characteristics: maternal age, education, and marital status. Odds ratios and ninety-five percent confidence intervals for preterm birth are shown for categories of the predictor variables, with the lowest risk category of each variable as a reference group (odds ratio = 1.00). If the confidence interval does not include 1.00, then the odds ratio is statistically different from 1.00 at the 95 percent confidence level.

The single-item census variable, percent of households with individuals earning less than a high school degree, was used to approximate neighborhood education level. A composite measure for neighborhood residential stability was constructed from two census tract variables: percent of the population over age 64 and percent of households in the same house since 1995. Higher values on these variables indicate more stability. The neighborhood poverty index is a composite measure that incorporates six census tract variables: percent of total population in poverty, percent of households that are female-headed with dependent children, percent of households with income less than $30,000, percent of households on public assistance, percent of households with no vehicle, and percent of households with no telephone.

The neighborhood deprivation index is a composite measure of neighborhood health that incorporates ten census tract measures representing four sociodemographic domains. The domain of poverty is represented by the percent of households below the 1999 federal poverty level, percent of households on public assistance, percent of households that are female-headed with dependent children, percent of households with income less than $30,000, percent of households with owner/renter expenses in excess of 50 percent of income, percent of home owners with no car, and percent of home owners with no telephone. The housing domain is represented by the median household value. The education domain is represented by the percent of individuals who did not complete high school, and the employment domain is represented by the unemployment rate. These measures were selected from many highly correlated census variables using principal components analysis. This is a statistical technique used to identify underlying dimensions within a set of variables and assign weights for each of the variables that comprise a dimension.

For neighborhood-level education, residential stability, poverty, and deprivation, the census tract proportions were categorized into four groups (quartiles). The 4th quartile indicates the worst neighborhood category (e.g., highest tract proportions of individuals with less than 12 years of education) and the 1st quartile indicates the best neighborhood category.

Analyses were stratified by race and limited to non-Hispanic whites and non-Hispanic African Americans, due to the small numbers of women of other races and ethnicities. A multilevel logistic modeling approach was undertaken to explore the contribution of the